CIVIL XPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC/BBMP/KRIDL/W.No.14/GSB-1/AL/2017-18

Date : 24.05.2017

ATTERBERG LIMITS TEST FOR GSB (COARSE GRADED)
IS : 2720 (Part - 5)

Client : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, BBMP, Bangalore.

Name of work : Improvements to 2nd, 3rd, 4th, 5th, & 6th cross roads of Bhoomika layout & MHR Layout in Bagalagunte in Ward No.14, BBMP, Bangalore.

Date of Testing : 24.05.2017

As per MORTH Table : 400-01

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit, %	22.55	25.0% Maximum.
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

For Civil Experts Consultants

Authorised Signatory

CIVIL EXPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC/BBMP/KRIDL/W.No.14/WMM/AL/2017-18 Date: : 31.05.2017

ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-11

Client : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, BBMP, Bangalore.

Name of Work : Improvements to 2nd, 3rd, 4th, 5th, & 6th cross roads of Bhoomika layout & MHR Layout in Bagalagunte in Ward No.14, BBMP, Bangalore.

Date of Testing : 31.05.2017

Material : Wet Mix Macadam

Sample Location : WMM Mix Plant

As per MORTH Table 400-11

Sl. No.	Particulars	Test Results	Standards as per Specifications
1	Liquid Limit	20.65	
2	Plasticity Index, %	Non Plastic	6.0% Maximum.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts Consultants

Authorised Signatory

CIVIL EXPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC/BBMP/KRIDL/W.No.14/WMM/GR/2017-18 Date : 31.05.2017

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.

Agency : **Technical Manager (West),** KRIDL, BBMP, Bangalore.

Name of Work : Improvements to 2nd, 3rd, 4th, 5th, & 6th cross roads of Bhoomika layout & MHR Layout in Bagalagunte in Ward No.14, BBMP, Bangalore.

Date of Testing : 31.05.2017

Material : Wet Mix Macadam

Sample Location : WMM Mix Plant Oven Dry Wt (gm): 12470

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	445	445	3.6	96.4	95-100
22.4	4328	4773	38.3	61.7	60-80
11.2	2465	7238	58.0	42.0	40-60
4.75	1587	8825	70.8	29.2	25-40
2.36	1390	10215	81.9	18.1	15-30
0.600	1155	11370	91.2	8.8	8-22
0.075	790	12160	97.5	2.5	0-8

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts Consultants

Authorised Signatory

CIVIL EXPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC/BBMP/KRIDL/W.No.14/BM/AIV/2017-18 07.06.2017

Aggregate Impact Value

IS: 2386 Part IV

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, BBMP, Bangalore.
Name of the Work	Improvements to 2nd, 3rd, 4th, 5th, & 6th cross roads of Bhoomika layout & MHR Layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
Source / Location	Hotmix Plant, Bangalore
Type of Mix	Bituminous Macadam
Date of Testing	07.06.2017

Sl No.	Details	Trial No. 1	Trial No. 2	Trial No. 3	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	363	365	371	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	88	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	279	82	283	
4	Aggregate Impact value = percent fines	23.14	23.56	23.72	
	100* (W_2/W_1)%				23.47

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory
→ The results indicated above are based on the tests carried out on the samples recieved in the laboratory
→ Any Query regarding the report must be reported within 15 days from the date of testing

For Civil Experts Consultants

Authorised Signatory

Job No.: CECTC/BBMP/KRIDL/W.No.14/BM/Shape/2017-18 Date: 07.06.2017

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	**Technical Manager(West),** KRIDL, BBMP, Bangalore.
Name of Work	Improvements to 2nd, 3rd, 4th, 5th, & 6th cross roads of Bhoomika layout & MHR Layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Bituminious Macadum
Date of Testing	07.06.2017

Passing through IS Sieve, mm	Retained On IS Sieve, mm	Weight of Sieved Fraction (W) gms		Proportion of Size range in the sample, X = 100xW/ΣW		Weight of 200 pieces of aggregates of the range, (P) in gms		Thickness gauge size, mm	Weight of flaky particles (F)in gms		Percentage by Weight of flaky aggregates in gms Y= 100xF/P	Weighed Percentage of flaky aggregates in gms XY=X × Y	Weight of fraction consisting of at least 200 Pieces in gms		Length gauge size in mm	Weight of aggregates in each fraction retained on Length gauge in gms	
63.00	50.00	W1		X1		P1		33.90	F1				P1		-	E1	
50.00	40.00	W2		X2		P2		27.00	F2				P2		81.00	E2	
40.00	31.50	W3		X3		P3		21.50	F3				P3		58.00	E3	
31.50	25.00	W4	3360.0	X4	33.86	P4	3255.0	16.95	F4	270.0	8.3	280.90	P4	-	-	E4	-
25.00	20.00	W5	2480.0	X5	24.99	P5	2260.0	13.50	F5	260.0	11.50	287.55	P5	2260.0	40.50	E5	246.0
20.00	16.00	W6	1540.0	X6	15.52	P6	1930.0	10.80	F6	245.0	12.69	197.03	P6	1930.0	32.40	E6	195.0
16.00	12.50	W7	1285.0	X7	12.95	P7	1285.0	8.55	F7	185.0	14.40	186.45	P7	1285.0	25.50	E7	139.0
12.50	10.00	W8	895.0	X8	9.02	P8	645.0	6.75	F8	160.0	24.81	223.76	P8	645.0	20.20	E8	96.0
10.00	6.30	W9	362.0	X9	3.65	P9	389.0	4.89	F9	95.0	24.42	89.10	P9	389.0	14.70	E9	85.0
		Σ W	**9922.0**									**ΣXY 1264.80**	**ΣP**	**6509.0**		**ΣE**	**761.0**

Flakiness Index = **12.65%**

Elongation Index = **11.69%**

Result : Combined Flakiness & Elongation index **24.34%**

Comments: Maximum allowable Combined flakiness and Elongation indices value for Bituminous Macadam is 35%.

Note:

→ The results indicated above are based on the tests carried out on the samples received in the laboratory.

For Civil Experts Consultants

Authorised Signatory

CIVIL XPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No: CECTC/BBMP/KRIDL/W.No.14/BC/GR/2017-18 09.06.2017

GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CLIENT	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, BBMP, Bangalore.
NAME OF THE WORK	Improvements to 2nd, 3rd, 4th, 5th, & 6th cross roads of Bhoomika layout & MHR Layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
SAMPLE I/D	2nd, 3rd, 4th, 5th, & 6th cross roads of Bhoomika layout & MHR Layout in Bagalagunte in Ward No.14
DATE OF TESTING	09.06.2017

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	Trail 1	
19	0	0	0	100	100
13.2	35	7.48	7.48	92.52	79-100
9.5	42.5	9.08	16.56	83.44	70-88
4.75	76.9	16.43	32.99	67.01	53-71
2.36	62.8	13.42	46.41	53.59	42-58
1.18	74.8	15.98	62.39	37.61	34-48
0.6	48.6	10.38	72.78	27.22	26-38
0.3	39.5	8.44	81.22	18.78	18-28
0.15	25.8	5.51	86.73	13.27	12-20
0.075	41.9	8.95	95.68	4.32	4-10

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-18 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
19	0	0	0	100	100
13.2	36.8	7.84	7.84	92.16	79-100
9.5	42.5	9.05	16.89	83.11	70-88
4.75	76.5	16.29	33.18	66.82	53-71
2.36	64.2	13.67	46.86	53.14	42-58
1.18	76.8	16.36	63.22	36.78	34-48
0.6	45.5	9.69	72.91	27.09	26-38
0.3	36.8	7.84	80.75	19.25	18-28
0.15	29.5	6.28	87.03	12.97	12-20
0.075	42	8.95	95.97	4.03	4-10

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory.
- The results indicated above are based on the tests carried out on the samples received in the laboratory.
- Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts Consultants

Authorised Signatory

CIVIL XPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC/BBMP/KRIDL/W.No.14/BC/Sta/2017-18 09.06.2017

TEST REPORT ON STABILITY OF MIX

Client	:	**Executive Engineer,** Dasarahalli Division, BBMP, Bangalore.
Agency	:	**Technical Manager (West),** KRIDL, BBMP, Bangalore.
Name of the Work	:	Improvements to 2nd, 3rd, 4th, 5th, & 6th cross roads of Bhoomika layout & MHR Layout in Bagalagunte in Ward No.14, BBMP, Bangalore.
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Bituminous Concrete
Date of Testing	:	09.06.2017

The results of the tests conducted on the Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-19)
1	Marshal Stability, Kn	10.20	10.45	9 Kn (min)
2	Marshal flow, mm	2.70	3.20	2 – 4
3	Percent air voids in Mineral Aggregate	13.40	14.15	13 – 15
4	Voids in Compacted Mix	4.40	4.80	3 – 6
5	Percent Voids filled with Bitumen	71.63	72.90	65 - 75
6	Density, g/cc	2.26	2.27	--

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts Consultants

Authorised Signatory